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The New York Botanical Garden.

THE managers of the New York Botanical Garden have received by subscription the fund of $250,000 which it was necessary to raise in order to secure the appropriation of 250 acres of land in one of the parks north of the Harlem River and the erection of buildings there by the city. Professor Britton, who is Secretary of the Board of Managers, has written a circular letter calling the attention of the public to the fact that the original plan of procuring half a million dollars or more as an endowment has not been abandoned, and that it is their desire to enlist popular interest in the enterprise and to receive pecuniary aid from any source. He adds that the development of the garden, after the grounds are laid out and the buildings are completed, will require a large annual income for many years, and since it is expected that this income will be derived mainly from the investment of the money contributed, there will be use for all that can be raised, and subscriptions of any amount will be welcomed.

Professor Britton does well to emphasize the fact that there will be use for all the money that can be obtained if we assume that New York is to have a garden worthy of its rank as chief city of the New World. The Royal Botanic Gardens at Kew, which are recognized as the leading institution of this kind in the world, cost $80,000 a year, although the botanic garden proper covers only seventy acres, and the labor employed can be secured at half the amount it costs here, while all supplies are correspondingly cheap. The income from $250,000 will cover but a small fraction of the expense of such a garden as we hope to see in this city; but there must be a beginning to all things, and the men who have subscribed this amount will be gratefully remembered by the city for their liberality and public spirit. The large sum already given proves that the men who have contributed to it are thoroughly in earnest, and that it will be their aim to build up in the city a great scientific establishment; and if they have clear and correct ideas as to what such an establishment should be there are among its incorporators enough men of administrative force to carry it forward to a successful future.

Of course, such an institution must grow into well-rounded proportions from comparatively modest beginnings. It is impossible at the outset to provide a completely developed establishment, well manned and equipped, for active usefulness. But, in order to reach such a stage, it is essential at the beginning to have a well-defined plan in which the lines of future growth are plainly laid down, for a botanic garden is the last thing in the world whose future can be safely trusted to any chance. Great care should be used in selecting the site, which is the physical foundation of the scheme, and its framework should be made with a clear apprehension of what its probable expansion will be in any direction. The modeling of the grounds, the location of the buildings which are needed immediately, and of those which will be required as material accumulates, will, no doubt, be made a subject of profound study. If this initial work is wisely done, and the plans, with their descriptions, are published, a stronger appeal for pecuniary aid can then be made than is now possible, for if these plans meet the hearty approval of men of science and of affairs so that liberal-minded patrons can have renewed assurance that the garden will be an institution of high scientific value and an object of genuine civic pride subscriptions will be, without doubt, forthcoming. The management should, therefore, not be discouraged if their fund grows slowly at first. Indeed, they ought rather to be stimulated by the prospect to begin the work of design with new heart and hope.

We have laid stress upon the scientific value of the garden, for, although "the prosecution and exhibition of ornamental and decorative horticulture for the entertainment and instruction of the people" is laid down as one of the purposes of the garden in the act of incorporation, it is not to be a pretty flower garden merely or primarily. It was the value and reputation of the collections which Sir William Hooker brought to Kew more than fifty years ago, his great botanical library and herbarium, as well as his own scientific standing, which attracted the attention of naturalists in every part of the world. The scientific spirit which characterized his administration and that of his still more renowned son, and which still prevails under the broad management of the present director, Mr. Thisselton-Dyer, is what gives to Kew its leading position among the botanic gardens of the world. The Royal Gardens are not a mere pleasure ground with showy flowers to please holiday makers, but they are the headquarters of a great scientific organization, which is felt, by its publications and exchanges, not only throughout the great British Empire, but through all the known globe, and even to the most inaccessible parts of the earth. From these remote and unexplored regions travelers and missionaries are sending seeds and plants to Kew, not only to enrich the pleasure gardens of the world, but they are widening the domain of scientific truth and disseminating knowledge which exerts a direct influence upon the world's trade, commerce and general economy. While it is the aim of the administration of Kew to make it beautiful, and to fill its borders and conservatories with attractive and picturesque vegetation, this does not overshadow the stern utilitarian and scientific purpose which reigns there, and the study of plants, for their uses in medicine and the arts, for food and fabrics, is never neglected or treated as a subordinate matter. It is the investigation of plants, the study of their life histories, which gives new value to them in the general economy of life, and it is by the help of such an institution that botanic researches into the secrets of plant-life can be made with the most hopeful prospect of results which will be of benefit to the race.

But Kew had been a garden for a century before Sir William Hooker was placed in charge in 1841, and ever since then it has been developing on the plans laid down by him and the landscape-gardener Nesfield. It has taken fifty years of the best scientific direction, with the resources of the British Empire behind it, to bring the Royal Gardens to their present condition. The gradual building up of a great library, herbarium and museum, the gathering of representative plants from the tropical floras of the world, the establishment of collections of hardy perennial and

annual plants, with rock-gardens, alpine gardens, aquatic gardens, shrubberies and arboreta, are not only the work of time, but the product of thought. To build up and maintain an establishment so vast and complicated requires original ability of the first rank, with thorough training added. Nevertheless, it is possible to make a better garden than any one the world has yet seen. And this is why it is so important to realize at the very threshold of the work the difficulties to be met and the necessity of securing the highest attainable scientific and executive talent. If the design of the garden shows breadth, originality and a full appreciation of what it ought to become, it will, without doubt, command all the aid it deserves, not only from private subscription, but from city and state appropriations.

The Persimmon.

MORE than one hundred and fifty species of Diospyros are now known to botanists, many of them inhabitants of tropical Asia, Africa, South America, Mexico and the region bordering the Caribbean Sea. The beautiful variegated Coromandel-wood is produced by two species from Ceylon, and the ebony of commerce is derived from species which inhabit India, western Africa, Mauritius and Malaya. Only two species exist in eastern North America, one of which is the Black Persimmon, Diospyros Texana, a tree with intricate branches, often growing to a height of fifty feet, with a trunk twenty inches in diameter. It reaches its largest size in Nuevo Leon, between the Sierra Madre and the Gulf of Mexico, and it abounds in western and southern Texas near the coast. It has never been planted for ornament, but its dark glossy foliage and black fruit make it an attractive tree.

The common Persimmon, Diospyros Virginiana, ranges throughout the country east of the Alleghanies as far north as New Haven, Connecticut, and west of the Alleghanies from the valley of the Colorado River, in Texas, to southeastern Iowa and southern Ohio. When grown in the open ground it becomes a tree forty or fifty feet high, with a trunk rather more than a foot through and a round-topped head, and spreading and sometimes drooping branches. Under favorable forest conditions in the Mississippi basin it sometimes reaches a height of more than a hundred feet, with a slender trunk free from branches seventy or eighty feet long. One of these trees standing in the old arboretum of Kew, which was presented by the Duke of Argyle to George III., is still growing, apparently as contented as in its native habitat, and measures more than sixty feet in height, with a spread of about thirty feet, and a trunk which girths five feet four inches, breast-high. The specimen in our illustration, p. 265, which stands in an old Corn-field near Auburn, Alabama, is a tree of about the same dimensions as the one in the Kew Arboretum. It is a graceful tree, and the photograph by no means does it justice.

The fruit of the Persimmon ripens in midsummer near the Gulf, but does not mature until late in autumn in the north, and hangs on the branches until after heavy frost. It is an inch to an inch and a half in diameter, although it varies much in different parts of the country and on different individual trees, not only in size and shape, but especially in quality. The early explorers in America found this fruit used by the Indians and were glad to avail themselves of it and pronounced it pleasant and somewhat luscious, although they discovered that when not fully ripe "Pessimmins were harsh and choaky and furred in a man's mouth like allam." The variability of the fruit and its improvement by selection and cultivation have brought it recently to the attention of nurserymen, and many varieties are now propagated and sold in different parts of the country, so that it seems destined to become a genuine addition to our orchard fruits. We are not aware that any successful efforts at crossing our native species have been made, or that it has been hybridized with the so-called Kaki, which has been cultivated for generations as a fruit-tree in Japan, where trees are found in every garden, and where a hundred varieties, at least, are now named and recognized. Diospyros Kaki, or a species much resembling it, is hardy in Peking and in the highlands of central Japan, where the climate is quite as trying as that of New England, and there seems no reason why plants of this northern strain should not succeed in our middle states. At all events, by hybridizing it with our native species we might hope to secure native fruits of high flavor and ornamental trees of great interest, for the Kaki, with its lustrous leaves and large bright-colored fruit, which is not equaled in beauty by any other fruit grown in north temperate climates, would add greatly to the interest of our rural landscapes. As an ornamental tree, our native Persimmon certainly deserves attention, not only because of its pale orange-colored fruit, but because it is adapted to a great variety of conditions from light, sandy soils to deep rich bottom-lands. Its habit is good, its leaves are large and glossy, its fruit is ornamental, and it is subject to comparatively few diseases or insect enemies.

Early Summer in the Pines.

MY record shows that many plants are two weeks later in flowering this season than they have been in all the years since I have taken notes in the Pines. Kalmia latifolia is now just in its prime, so is Magnolia glauca and Itea Virginica. Viburnum nudum is full of bloom, and its relative, the common Elder, is handsome with its great flat cymes of flowers. The Holly, too, is in bloom, with last year's berries still thickly clinging to the twigs, but most of the old foliage has fallen and given place to the new lighter green leaves which will gradually take on their deep dark hue. Ilex verticillata and I. lævigata are also in flower, as well as the Inkberry, I. glabra. I have several plants of the Inkberry in my wild garden, and so far have failed to find any staminate flowers, and yet my plants fruit freely. It is a mile or more to the nearest plants in the Pines, so that insects must take quite long trips to carry the pollen.

The fruit of the Shad-bush, Amelanchier Canadensis, is fully ripe, and some of the bushes are highly ornamental. The dark blue fruit of the Tupelo is also ornamental, and has a pleasant acid taste which is very grateful, especially on a warm dry day in the Pines when no drinkable water is at hand. The Staghorn Sumach, Rhus typhina, and R. glabra are in bloom, and for the first time in several years the flowers have escaped the ravages of the rose bug. This pest is at last disappearing from our neighborhood. I have noticed comparatively few bugs on some of the Roses; everything else is unmolested. No one out of the infested district can realize the thankfulness we feel in being delivered from this scourge. Not only were our flowers destroyed, but the creatures ate the stems of plants. Strong stems of Hollyhock and Hibiscus were cut down, and green apples, peaches and plums were devoured, and not a Grape blossom escaped them that was unprotected.

A good many herbaceous plants are making the Pines gay at this time. In dry, sandy places Tephrosia Virginiana and its relative, the wild Lupines, make a brilliant mass of color. In yellow nothing is more showy and graceful than Coreopsis grandiflora, which in places stands so thickly that it excludes everything else. Some of the Lysimachias, too, are in flower, modest attractive plants with handsome foliage and pretty blossoms. Aletris, with long spikes of tubular flowers and a thick rosette of lily-like evergreen leaves, is abundant in many places. Both species of Chimaphila are here, with handsome, fragrant, waxy-looking flowers, which, together with their foliage, make most charming table bouquets. In wet places the Pickerel-weed is showing its long spikes of blue flowers, and the Orchids, Calopogon pulchellus and Pogonia ophioglossoides are also beginning to show their handsome flowers.

I have not mentioned among the foreign plants which have taken up their abode with us Galium verum. Indeed,

I have seen it for the first time this summer. It is a relative of Sherardia arvensis, which I recently mentioned in one of my notes of the Pines. This Galium has bright yellow flowers, larger and more numerous than most of the Galiums, but it is not a strong rampant grower like the foreign G. Mollugo. The flowers of the two species, however, blend nicely, and look airy and attractive in this hot weather.

Asclepias obtusifolia is in blossom, and has a singular effect on many insects. Within the horns of the flowers we often find lifeless small flies and tiny bees, and sometimes honey-bees are held fast by the feet until they die, and the most vigorous shaking will not loosen their hold. But the most curious thing is the way in which some beetles are affected by the milky juice of the plant. A handsome little beetle, red and black in color, half an inch or more in length, of the Capricorn form, with long-jointed antennæ, punctures the stems with its strong jaws, and sips or laps the copious juice until it falls down apparently dead. But it is not dead, and after a while it recovers as if from a drunken frolic. I had some of these recovered drunken beetles confined in the house for two days, and then gave them a fresh plant, and, like some higher animals, they got drunk again.

Vineland, N. J. *Mary Treat.*

Notes upon Corylus rostrata and C. Californica.

THE Division of Pomology, in the Department of Agriculture, has been preparing a Bulletin upon "Nut Culture in the United States." This bulletin, which will soon appear, will contain figures and descriptions of the most useful native or introduced nuts of this country. In the study of the Hazel-nut much interesting material was collected, and through the kindness of Mr. William P. Corsa, I have been able to examine it. In comparing our common long-beaked species with its western variety I have become convinced that they are specifically distinct. The so-called variety Californica differs from the true Corylus rostrata in a number of marked respects.* C. rostrata is much less pubescent, sometimes nearly glabrous, while in the western form the branches and petioles have pilose hairs, sometimes gland-tipped, intermixed with a denser shorter pubescence; the leaves are pilose and somewhat rough above and generally densely villous beneath. In C. rostrata the leaves are of different shape, thicker and more strongly reticulate beneath, and not at all acuminate. It has a smaller involucre with much longer beak, and the nut of C. rostrata is nearly oval, of a dull brown color and a very thin shell. In the other species the fruit is often oblong and larger, generally of a darker brown color and a very thick shell. These are the most striking characters, but there are also slight differences in the stipules, in the toothing of the leaves, and, perhaps, in the habit. C. rostrata is generally a low shrub three to six feet high, while the western form sometimes reaches twenty feet, and one case has been reported of a trunk sixty feet long and six inches in diameter; the latter has not an erect stem, however, but is a spreading shoot. The range of these species is quite distinct. The western form is found in the lower mountains and foot-hills, from middle California, through Oregon and Washington, to British Columbia, the type coming from Santa Cruz. C. rostrata proper is found in the eastern United States and Canada, extending on the mountains as far south as Georgia and westward to Minnesota and Colorado. It may extend farther westward, but we have seen no specimens. In the *Botany of California*, however, it is stated that it is found in Washington. The variety Californica was first set apart by A. De Candolle in the *Prodromus* in 1864, but the only character pointed out was the difference in the beak. The type was based on the single collection of Hartweg. This disposal of the plant has been followed by Dr. Watson in the *Botany of California*, and by Professor Greene in the *Manual of the Bay Region Botany*. Much material, of course, has been collected since the variety was first established, and a better idea can be formed of its characters.

Department of Agriculture, Washington. *J. N. Rose.*

* Corylus Californica (A. DC.) Rose. Corylus rostrata Californica, A. De Candolle, *Prod.*, xvi., pt. ii., 133 (1864).—Brewer and Watson, *Bot. Cal.*, ii., 101.—Greene, *Bot. Bay Region*, 304.

Young branches dark brown or blackish, more or less hispid and glandular; leaves nearly oval, slightly cordate at base, obtuse, or at most acutish, roughish above and more or less villous and reticulated beneath, thickish; stipules ovate, obtuse; tube rather short and loose, often flaring, sometimes torn, 9 lines or less long; nut oblong to ovate, 9 lines long; shell brown, shining, very thick (1 to 1¼ lines).

Corylus rostrata, Hort., Aiton, Kew, iii., 364 (1789).

Young branches light brown, glabrous or pubescent, never glandular; leaves ovate to ovate-oblong, slightly cordate, acuminate, thin, often smooth above, very pale beneath, nearly glabrous or more or less pubescent; stipules narrowly ovate to linear, acute, 2½ lines long; involucre densely bristly, prolonged into a slender tube above the fruit, 1 to 1½ inches long; nut oval to ovate, 5 to 6 lines in diameter, pubescent when young; shell dull brown color, very thin (1½ line or less).

Foreign Correspondence.

London Letter.

ROSES.—This has been a grand Rose season, the display at Kew surpassing anything seen here for many years. I speak chiefly of the species of Rose and such varieties as are interesting botanically. Rosa multiflora is a picture, a number of large interwoven bushes being crowded with clusters of white flowers, suggesting a little range of snowy hillocks. By the side of it is what we call the Dawson Rose, one of the hybrids raised by Mr. Jackson Dawson from R. multiflora and General Jacqueminot. It is a beauty, the flowers a soft pink, and so numerous on the branches as to positively weigh them down. Another glorious hybrid is the offspring of General Jacqueminot and R. rugosa, and which we owe to Mr. Anthony Waterer. In my opinion this is as good a Rose as Crimson Rambler, growing vigorously, flowering with great freedom, and the color of its medium-sized semi-double flowers is a rich bright crimson. It is thought a great deal of at Kew.

Another beautiful Rose, probably a hybrid between Rosa rugosa and some other, is named Double de Coubert, a stupid name for one of the loveliest of pure white, large, free-flowering Roses. It has the habit of R. rugosa, but is less stiff and the flowers last well. It was awarded a certificate at the last meeting of the Royal Horticultural Society. There is a bed of it in a conspicuous place on a lawn at Kew. R. grandiflora, a large-flowered single variety of R. spinosissima, has been finer than ever. The Japanese R. Wichuraiana is spreading over the ground as though it would cover an acre in a few years. A figure of it has just appeared in the *Botanical Magazine*, where Sir Joseph Hooker reduces it to R. Luciæ, described by Franchet from specimens collected in China in 1884. It flowers here in August. The Penzance Sweetbrier Roses are again charming. There is a suspicion that most, if not all, of these so-called hybrids are only seedling sports, but, whatever their origin, horticulture owes a debt of gratitude for the possession of a series of varieties of one of the most elegant and poetical of all hedgerow Roses. R. Californica is one of the strongest growers and freest bloomers among the many species grown at Kew. R. Indica has survived the cold surprisingly well and is now flowering freely, both the single and the semi-double sanguinea varieties being particularly pretty in June. The Himalayan R. Webbiana is now flowering for the first time, and the many varieties of the exquisite R. lutea are represented by bushes or beds of small plants thickly studded with bright yellow buds and flowers. R. gigantea has proved hopeless out-of-doors, and it shows no signs of flower under glass. A garden planted with these beautiful wild Roses, allowed to grow their own way, assisted only by liberal supplies of manure, would be a delightful place in June and July.

LONICERA HILDEBRANDII.—I have already mentioned this strikingly handsome Honeysuckle from the Shan States, Upper Burma, which has been introduced into Kew, where it is now growing vigorously under glass, its stems extending twenty feet or more and clothed with glossy green leathery ovate leaves eight inches long and five inches wide. The flowers are the largest of all Loniceras and of

a rich red color. So far no flowers have been produced by cultivated plants, and I refer to it again now to record its hardiness at Kew, about a dozen seedling plants out of a batch of fifty left out all winter having survived the cold and started again into vigorous growth. A remarkable character in this species is that of the seedlings developing a fleshy bole-like stem or rather base, about four inches long and as thick as a man's thumb. The shoots were all killed down to this thickened portion, which remained uninjured, and from the apex of which the new shoots have sprung.

Two good hardy Azaleas are A. amœna and the variety of A. indica known as Ledifolia. They have withstood the severe cold of last winter as well as any of the Japanese plants, and they have flowered with a profuseness surpassing, if that is possible, their behavior when grown in pots under glass. Any one who has once seen these plants out-of-doors in the garden of Sir E. Loder, at Horsham, in Sussex, when laden with flowers, and looking as happy as Heather—happier, indeed, than the latter looked this year after the frost—will not think of again treating them as indoor plants, in the south of England at any rate. It is surprising that these two plants should only recently be proved hardy here, seeing that they have been in cultivation about seventy years. Another variety of A. Indica, sent out by Messrs. Veitch & Sons as The Mikado, is also quite hardy at Kew. It has sub-prostrate branches and rosy-red medium-sized flowers.

Pæonies.—English gardens are now aglow with herbaceous Pæonies, which have sprung somewhat suddenly into popularity, owing largely to the many beautiful varieties raised by such growers as Messrs. Kelway, of Langport; Messrs. G. Paul & Son, of Cheshunt, and Messrs. Lemoine & Son, of Nancy. Messrs. Barr & Sons grow them in enormous quantities, and the display of them in the nursery at Thames Ditton is worth going a long way to see. These are preëminently plants for the herbaceous border; they are also most effective when planted in large bold masses on the lawn. At Kew there is a terrace-garden of about a quarter of an acre devoted exclusively to them and the varieties of P. arboreum, hundreds of large clumps occupying beds in the grass. The display began with the Moutans last month, and now in the middle of June the grandeur of the herbaceous sorts is such as to attract the attention of crowds of visitors, who are delighted to see a revival of these old-fashioned garden flowers. Many of the new varieties have a powerful and pleasing fragrance which is preferable to the disagreeable odor of the older sorts. There are all shades of color between pure white, yellow and magenta, and a considerable range of variety in size and form. Pæonies prefer to be let alone when once planted, and they like a deep rich loam liberally manured. In dry weather they should be watered freely. The flowers are most useful for room-decoration, lasting well if cut just when the buds burst. Of course, only those that are fragrant are to be recommended for rooms.

Oriental Poppies are the glory of our borders and wild garden all through the month of June. No plants produce such a show for so small an outlay of money and labor. They flourish in almost any kind of soil, quickly forming large masses of handsome foliage and crowds of enormous bright scarlet cups elevated on elegant stalks well above the leaves. We grow them largely, and there are now several well-marked varieties, some with bright orange-scarlet flowers, others with a large black-purple blotch at the base of each petal, others with flowers of a deep claret color, and others again colored rich crimson. There is no clear line of demarcation between Papaver orientale and P. bracteatum—at any rate, in gardens—the darker color and the large floral bract by which the latter used to be distinguished being found in some forms of the former. These Poppies are perennial, but they will flower in a year from seed.

Saxifraga pyramidalis.—This plant is quite hardy near London, some examples of it left in an exposed position in the rock-garden at Kew having passed through the late severe winter uninjured, and flowered in the first week in June as well as plants carefully grown in pots in a frame. It is by far the best of the Saxifrages for the garden, and many thousands of it are grown in pots for the supply of the London market, a plant in a four-inch pot producing an erect pyramidal raceme of white flowers two feet, or even more, in height. Probably the merits of this plant are well known to your readers, although even here it is not by any means widely cultivated, our friends from the country being usually totally unacquainted with it. To produce tall racemes the plants should be limited to a single crown. It is called S. cotyledon by botanists, but the name here given is universal for it by growers.

Inula glandulosa.—A standard English book on garden flowers speaks of the genus Inula as "perennial plants of the Composite family, none of which are very important for the garden." Now, it may be truly said that few Composites are more worthy of a place in the garden than I. glandulosa. In the rock-garden at Kew it has occupied a conspicuous position for some years, and every year it sends up a crowd of slender leafy stems a yard long, each terminated by a single flower-head five inches across, something like a Sunflower, but more elegant in the broad silk-like fringe of ray-florets than any Sunflower known to me. The disk, which is two inches across, is a dense bush-like cluster of hair-like stigmas standing above the florets. The color is, however, its chief charm, pure old gold, the color of an Australian sovereign. The flowers last a week or two, and are perfection for room-decoration. The plant is as hardy as a Dock. It is a native of the Caucasian Alps, and has been known in gardens since 1804. A plant of it was certificated this week under the erroneous name of I. Hookeri, a widely different species, native of the Himalaya, with pale purplish flower-heads only two inches across. There is a figure of it in the *Botanical Magazine*, t. 6411.

London. *W. Watson.*

Plant Notes.

Styrax Americana.—This shrub, which flowers in the middle of June, is not often seen in our gardens, although few of our native shrubs have a more graceful habit, and when its slender branches are decorated with its drooping racemes of pure white bell-shaped flowers it has a delicate beauty quite its own. In its native habitat it reaches a height of from four to eight feet, and is usually found in low ground and along the margins of swamps, although it will thrive in gardens under ordinary garden conditions. Its range is south of Virginia, but it is quite hardy as far north as New England. The Japanese Styrax, S. Japonica, is quite as hardy and, perhaps, more showy, since its petals are broader and the flowers larger. They are not borne in racemes, but hang singly on the under side of the branches. S. Obassia becomes in Japan a tree twenty to thirty feet high, of graceful form, with leaves more than six inches across, and white bell-shaped flowers nearly an inch in length, and borne in long pendulous racemes. It is a comparatively recent introduction, but it has proved hardy in the middle states, and will, perhaps, be the most valuable plant of the family. It is to be said against these plants that the flowers are quite fugacious, and that they are largely hidden by the foliage, except when borne on stems high enough to give a view of their under side. Judicious pruning when young will give the plants a better form than they naturally assume, which is often too open, but the foliage is clean and lustrous, and they ought to find a place in every considerable collection of shrubs. They are closely related to the Silver Bell-tree, Mohrodendron Carolinum, which is easily raised from seed, and upon which they may be successfully grafted.

Hemerocallis flava.—This good old-fashioned plant has just passed out of bloom. It is a native of south Europe, Siberia and Japan. It has been long in cultivation, and is one of our best and most useful plants for the herbaceous

border, and superior to the other species of the same genus, although several of these also are worthy of more frequent cultivation. Hemerocallis flava has numerous lemon-yellow flowers, borne on naked stems, which are about three feet high, and they are very fragrant and beautiful in form, color and texture. The leaves are long and narrow, forming a large mass at the base of the plant, which makes a pleasant setting for the bright and showy flowers. Almost any well-drained soil is suitable for this plant; it is not at all exacting in its demands; plenty of room, food and sun are desirable, but not absolutely necessary. It should be planted in masses; in combination with some of the lavender, blue or purple varieties of Iris Germanica which bloom at the same time, it makes one of the most telling displays which the hardy garden can produce. Besides this, it is one of the most useful plants for cutting. A large vase filled with the long-stemmed flowers is very imposing. Propagation is by division, either in early spring, just before growth begins, or in autumn, when the leaves are fading. H. Dumortieri (Sieboldii) has deep orange-yellow flowers, tinged with brown on the outside, which are without scent and are not so tall and erect as in H. flava. This species, however, is a strong grower, and, having fine foliage and abundant flowers, is well adapted to those gardens and situations where much care cannot be given; when planted in masses on the edge of a shrubbery it makes an admirable fringe—a most agreeable connecting link between the grass and the shrubs. For this last-named purpose, perhaps, H. fulva is even better fitted. This plant, when once established, can successfully contend against almost any encroaching vegetation; witness its endurance about the old house sites on "abandoned farms." The foliage is bolder, the flowers are larger and borne well above the leaves; taken altogether, it is a most effective plant for the wild garden and for those forms of planting where bold effects are desired and where much cultural care cannot be bestowed. The flowers of H. fulva, which are dull in color as compared with those of the two other species, open in July; the plant is sometimes called the Mahogany Lily on account of their deep tawny orange hue, well expressed in this name. The common name given to Hemerocallis is the Day Lily, shared by this genus with Funkia in many places.

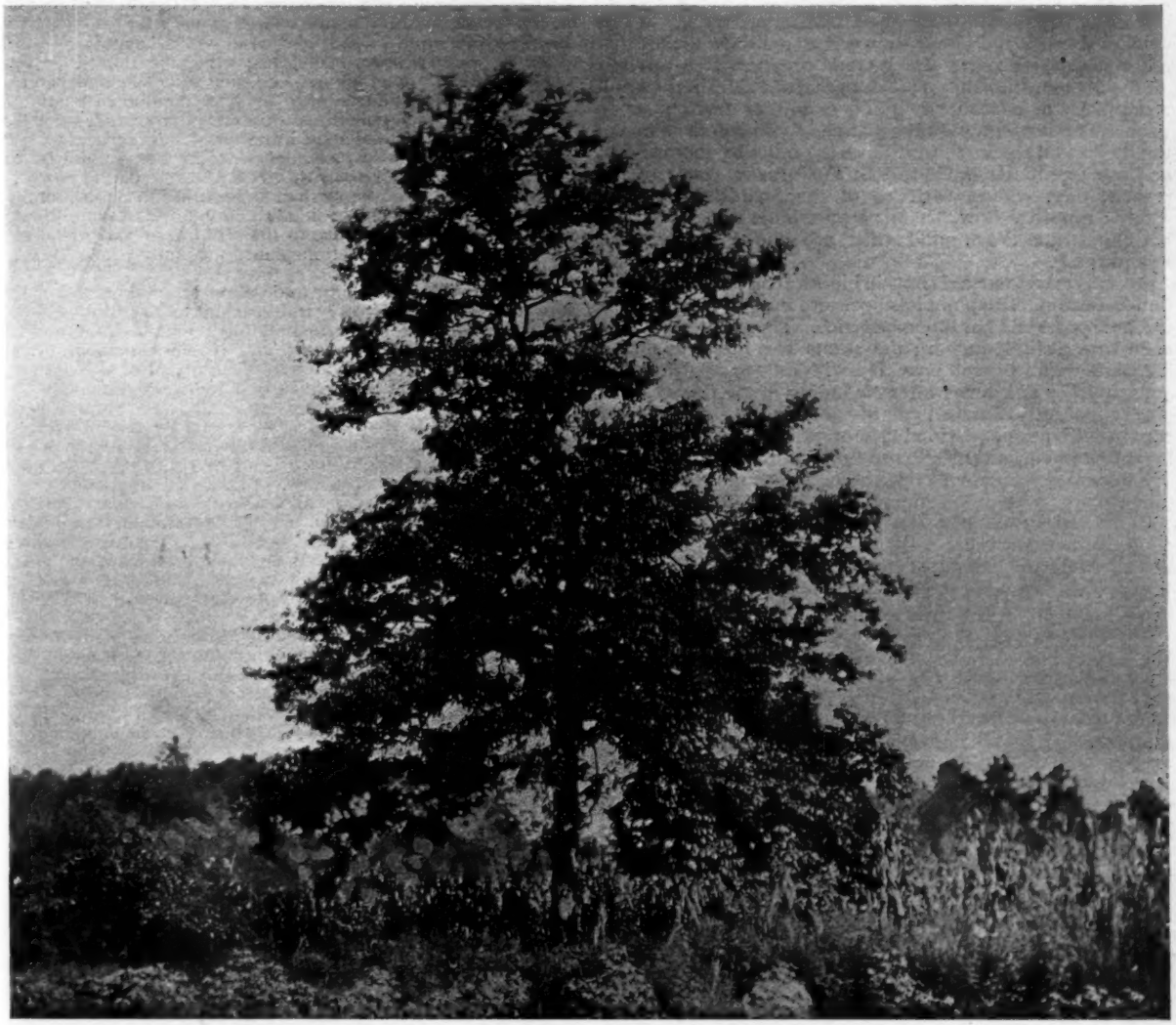

Fig. 38.—Persimmon-tree, Diospyros Virginiana, near Auburn, Alabama.—See page 262.

IRIS XIPHIOIDES (ANGLICA).—This is the English Iris of the garden, a bulbous plant, a native of southern Europe and long in cultivation. Unfortunately, this charming Iris is somewhat tender in exposed places in New England, but if it has a sheltered position, a well-drained soil and a

slight covering of Pine-needles before severe frost, there is no real difficulty in obtaining good results in ordinary seasons. The flowers, which are nearly as large as those of the German Iris, open late in June, or even early in July, and present a wide range of color, from pure white to deep blue or purple, with various shades of yellow intermingled. The foliage is deep green, linear and not overabundant. The bulbs should be planted in October or early November; they are grown in large quantities in Holland and are very cheap; either named varieties or "mixtures" can be used. The cost of the bulbs is so little that, unless the soil and situation is very favorable, it is better to throw away the old bulbs after blooming and obtain a fresh supply annually. The Spanish Iris, I. vulgaris (Hispanica or Xiphium) is very like the English Iris, but has smaller flowers and blooms a week or ten days earlier. It requires the same care and general treatment as advised above for the English Iris; it is, perhaps, a little hardier and more likely to continue in good condition from year to year. The flowers present great variety in colors; some of the dull, tawny yellows and blues are quite by themselves, and are apparently made to suit the artistic tastes of the present day. Some varieties of the Spanish Iris force easily: a pure yellow, Diana; a pure blue, Antelope; British Queen, the Pearl, good white, are among the best for this purpose.

Ostrowskya magnifica is now in bloom at the Bussey Institution in Boston. The plant has been growing in the open air for three years and has bloomed twice. There are two stalks, each with a single flower; the stems are about eighteen inches high, fairly well provided with foliage, which, however, quickly dies away after the fading of the flower. This plant apparently is perfectly hardy and requires no particular care in cultivation, provided the border in which it is planted is well drained, fairly sheltered from cold winds and rather dry in summer. Growth begins soon after the frost leaves the ground. The large campanulate flower (it is described and figured in Garden and Forest, vol. vi., page 274) is quite distinct and is certainly very handsome. The plant is well worth the persistent attempt which seems necessary to establish it in our gardens. Plants are now offered by the Dutch dealers at moderate rates.

Eremurus.—Only one species of this genus has been extensively tested in the United States, although several others are under trial. Eremurus robustus has been flowered in many American gardens, and Mr. Endicott and others have described its habits and requirements in our columns. The whole genus, however, is rapidly growing in favor with cultivators of hardy plants, and there are now about thirty species known, most of which have been introduced, but only few of them have become established. Concerning these plants, Mr. Watson writes that failure is generally due to an initial mistake—that is, they are planted in unsuitable positions. In a sunny sheltered border, where the soil is deep and rich and properly drained, they grow well and become permanently established. Once planted they should be left undisturbed, but they require an annual mulch of good manure and the soil forked up about them. In the garden of Professor Foster, near Cambridge, there were lately sixty strong spikes of bloom of various species of Eremuri, some of which were seven feet high. The best of the dozen species represented at Kew is E. robustus, which has been known to produce spikes ten feet high, their upper third being crowded with star-like pale pink flowers. Next to this in beauty, and on account of its good behavior in the garden, is E. Himalaicus, which has shorter spikes of pure white flowers. In Mr. Gumbleton's garden at Queenstown, Cork, this species is a great success, growing freely and establishing itself from seeds like a weed. E. spectabilis, with spikes a yard long and yellow flowers, is another good garden plant. Where they are happy these plants are most effective, and they are worth a trial in any garden where the conditions are likely to suit them. They are all Asiatic, all hardy enough to bear the cold of an ordinary English winter, and most of them can probably be grown with success in our middle states and, perhaps, in New England.

Cultural Department.

Best Time for Transplanting.

PERHAPS no question is propounded to an orchardist, a nurseryman or an editor oftener than "What is the best time to transplant?" unless it be the equally difficult question, "What is the best time to prune?" It is quite as easy to give a wrong answer as to give a right one in either case, no matter which alternative is taken. The truth is, that almost any other point is more important than the time, merely, in the matter of performing any of these operations of the orchard or nursery. Trees, not only small ones, but very large ones, have been moved while in full leaf with entire success by strict attention to the proper conditions; while the opposite result is apt to attend upon their neglect, even with the smallest ones.

If the removal of a tree or plant is so conducted as not to interfere with its supply of nutriment and moisture—the last being the most immediately important—it is certain to take root and grow, with scarcely a check to its growth and future thrift. This has been many times demonstrated, and nowhere more fully and remarkably than at the Chicago Exposition. If full-grown trees of many kinds can be thus taken up and removed without hindrance to their nutrition and growth, it should not be difficult to transplant almost any young fruit or shade trees.

While there is a best time to do almost anything, and while it is not best to remove any tree or plant in dry, hot weather, yet, if it must be done, as in building operations, there is no absolute impossibility about it, and if every incident of the work is made to accord with nature's laws, success is inevitable. As for small trees, even when lightly covered with soil or heeled in, either in fall or spring, and left without attention, they rarely, if ever, die. The reason for this probably is that the work is promptly, even if hastily, done. I have known of trees left so for two or three years, which when planted in the orchard grew quite thriftily. By intelligent pruning these can be brought into good shape. Now, if under such careless treatment successful results are not impossible, how utterly needless is it that any failure should occur under ordinary conditions? Even trees left lying about, uncovered, in the hot sun for a week, in a nursery, have been picked up, buried for a week in moist ground, planted out and brought into health and fruitfulness.

But the possibility of such results is no excuse for careless work. The best of anything is not too good, and the best methods are the most profitable. As to fall or spring planting, when all the work has been timely and carefully done, I have never noted much difference between them. If the work should be done in spring, it is best to transplant as soon as the frost is out of the ground, and in fall as soon as the leaves will strip easily, which is soon after the first sharp freeze.

Newport, Vt. *T. H. Hoskins.*

Greenhouse Celery.

THE regular supply of Celery from storage generally runs out about the latter part of April. For a considerable period before this time the stored produce becomes tough and flavorless, losing the brittle crispness which is so desirable in this vegetable. It has long been a problem how this evil might be remedied and the season of good marketable Celery prolonged. Hitherto the strong demand during the summer months has met with no supply, although excellent prices could then be secured. The chief difficulty in the way of greenhouse culture has been in the blanching of the crop. To blanch a plantation by the ordinary process of earthing-up would require a large amount of space between the plants, and this would seriously curtail the profits, and it is questionable if a crop raised under such conditions would yield any profit. Some Celery grown here last year was in excellent condition during the months of May and June, but the plants were too close to allow of earthing-up, and no other system of blanching was then considered practicable. This year again we made another plantation, and our experiments in blanching have been highly satisfactory.

The seeds were sown in shallow seed-pans December 10th, and placed in a temperature of about sixty-five degrees. The seedlings were pricked off into pans January 7th, and after being hardened off somewhat they were finally planted seven inches apart in the solid bed of a house in which the tempera-

ture is kept at about fifty degrees during the winter and early spring months. This final planting took place February 6th. The soil used was that in which Chrysanthemums had been grown up to January, and it was not manured in any way for the Celery. The roof of the house was five feet above the soil. The plants made good progress, and on April 12th were ready for bleaching. We at first tried thin wrapping-paper and two-inch drain tiles, having previously tied up the leaves firmly with raffia. Neither of these materials, however, was satisfactory. The plants rotted in the tiles, and in the paper the leaves damped off to a large extent. The paper might have served its purpose had it been changed and the plants cleaned once a week, but this involved too much labor, and the damping off of the foliage injured the flavor of the Celery. On two other batches of the same crop we then tried wrappers of heavy porous paper, similar to that used for drying botanical specimens, and White's patent Celery blancher. The drying paper had the same defects as the thin wrapping-paper already employed. White's blancher promised better results. This consists of a sheet of heavy, flexible, dark red paper, fifteen inches long by twelve inches wide, with a light wooden slat at one end and in the centre, and a string for tying fastened in the middle of the latter slat. It is certainly a handy device, but, owing, doubtless, to the presence of some preserving chemical in the paper, it had not been adjusted an hour before the leaves of the plants began to shrivel and turn brown, the plants ultimately dying. If the paper were rendered harmless and the slat lengthened at the end by about two inches, with the added portion pointed so that it may be inserted in the soil at the base of the plant, this blancher would be just the thing needed.

But thus far we had failed to get a satisfactory bleacher, and something else had to be tried if we were to secure any good result from our crop. Another lot of plants was accordingly treated with a heavy wrapping-paper, firm in texture and smooth. This had the desired result of bleaching the Celery thoroughly. These bleachers were placed in position May 9th, and the Celery, excellent in flavor, was ready for use May 25th. In this experiment we grew only two varieties—Giant White and Kalamazoo. The latter is of stockier habit than Giant White, and it seems to force and blanch better.

Cornell University. *Michael Barker.*

Some Good Hardy Perennials.

CAMPANULA PERSICIFOLIA is an old-fashioned and well-known perennial, and has been grown in gardens for three centuries, but, although cultivated for so long a period, the type and its various forms are numbered among our choicest summer-blossoming, hardy, herbaceous plants. The typical plant has large, broadly campanulate blue flowers. The stems on which the flowers are produced are from two to three feet high, and the inflorescence is a sort of raceme. The leaves on the flower-stems are linear-lanceolate, and the root-leaves are a little broader. In gardens there are many forms of this Harebell to be found, and they are all good hardy plants. A few of the best varieties are the following: Alba is a pure white form, with flowers about the same size as the type, and is more common in cultivation than any other variety of this plant. Alba coronata has pure white semi-double flowers; but the best of all the forms known to me is the one in flower now under the name Grandiflora. This is a distinct plant, with larger flower-stems, larger leaves and much larger pure white bell-shaped flowers than any of the other forms. The flowers of the species and all its varieties are useful for cutting and last well in a cut state. If the flowers are not needed for cutting purposes they should not be cut down after the first crop of flowers are over. If they are left alone a little later they will produce a second lot of flowers which is almost as good as the first ones. None of the varieties of this Harebell are particular about soil or situation; they grow well in any ordinary garden soil, but to get extra good plants they require good rich soil and should be transplanted every second or third year.

In the rock-garden Campanula Portenschlagiana is completely covered with blue flowers. It is a pretty dwarf plant, just suited for this situation, and only grows about eight inches high. The nearly erect bell-shaped flowers are so numerous on the plant that one looking down upon it can hardly see any of the leaves. This little gem comes to us from the south of Europe and has proved hardy here for a number of years.

In the herbaceous border Campanula latifolia macrantha is very handsome and showy at this time. It is a stately perennial and very showy, and should be planted in a conspicuous position where it will be seen to advantage. It has flower-stems about four feet high, with large flowers of an exceptionally bright purple-blue color. It is a vigorous plant in any ordinary soil. It comes true from seed, and plants are easily raised if the seed is sown in spring.

Let me add a word to what was said last week about the Fraxinella. One might suppose that so interesting a plant as this, after having been in cultivation for three centuries, would be found in every garden, especially since it is one of those which practically never run out if once established in fairly good soil and let alone. I find in Johnson's *Gardeners' Dictionary* that "instances are known where the Fraxinella has outlived father, son and grandson in the same spot." Although the flowers of the white Fraxinella are rather handsomer than the rosy purple ones, the latter plant is much more vigorous. Its flowers are borne on stems more than a yard high, and a specimen which has remained in a good position undisturbed for years throws up strong pinnate leaves, and is very useful where a large mass of foliage is needed during the summer. Both plants do well in a slightly shaded situation. Cuttings grow freely and they make large plants sooner than when grown from seed.

Harvard Botanic Garden. *Robert Cameron.*

Hardy Nymphæas.

GROWERS of Nymphæas would feel an enhanced obligation to Dr. Faunce if he would trace the parentage of N. Laydekeri rosea one step further, and reveal the male parent. It is evidently futile to conjecture, in view of the revelations which have been made, as to the origin of the hybrid Water-lilies. N. chromatella was long supposed to be a hybrid of N. tuberosa by botanists, and was named by them N. tuberosa flavescens, yet Monsieur Marliac declares its origin as N. alba × N. flava. If the botanists are misled, we laymen can scarcely be blamed for being apparently so far astray in our guesses as to the origin of N. Laydekeri rosea. From its form, so nearly like N. pygmæa, and its peculiar coloring, changing from light to dark red, any one who had grown the two species naturally hazarded the statement that they were the responsible parents. It does not seem to have occurred to any one to venture, at least in print, a possible origin from N. rubra until Monsieur Marliac, in *The Garden*, December 23d, 1893, gave this as a grandparent. In this article he says the hybrid between N. rubra and a hardy species—name not given—produced no offsets, but a plentiful supply of seed, which, however, produced plants of varying shades of red from soft pink to the deepest shades. These varieties prove useful for hybridizing choice stoloniferous and proliferous kinds, and it is from these hybrids that he has obtained the series of hardy hybrids, N. Robinsoni, N. Seignoureti, N. Laydekeri rosea, N. liliacea, N. fulgens, N. Marliacea ignea, N. Marliacea rubra punctata, N. Marliacea flammea, etc.

Monsieur Marliac has given no indication of the other parents except that he has made crosses with yellow-flowered kinds, and the matter seems to be in considerable obscurity. Dr. Faunce seems to carry the matter a step further in giving Nymphæa rubra punctata as one of the immediate parents of N. Laydekeri rosea, with the remark that Marliac "has not sold the goose," etc., which is singular in view of the fact that it is an open secret that the stock of this variety, only one plant, or possibly two, if I remember rightly, was offered for sale, while N. Laydekeri rosea was being sold at twenty francs a plant and was put out at thirty francs the first season. It is also said that N. rubra punctata is as large as N. odorata rosea; this being so, it is singular that it should be persistently crossed with something to reduce the size of its flowers, for it can scarcely be meant that it produces self-fertilized seed which give flowers of half the size and of different color from the only parent. The matter does not seem exactly clear, and it is to be hoped that some of our growers with ample space will follow up the points and endeavor to verify the crosses, a pursuit which would be as interesting as profitable if successful.

It would also be interesting to know exactly how hardy the Nymphæas are, and under what hard conditions they will exist or fail. It is certain that many of them will endure some freezing. My N. alba candidissima is almost invariably encased in ice each winter, and has never suffered. One of my tanks, which was covered with loose thin boards, developed a fracture last January and became empty and remained so for a number of weeks during the very low temperature then prevailing. There was a sheet of about four inches of ice, which, while it did not prevent cold air reaching the roots, probably furnished some slight protection. Yet, with an outside temperature of zero or less, this protection could not exclude frost, and, later on, the ice disappeared entirely. Under these

conditions none of the hardy Nymphæas suffered in the least, and have since grown as strongly as usual. There were in the tank N. alba candidissima, N. rosacea, N. alba rosea, N. sulphurea, N. pygmæa and a few seedlings. If some one will relate the conditions under which he has lost his plants, perhaps we may progress toward the discovery of the line of safety. My experience in growing the hardy Nymphæas leads me to let them alone after they are once established and doing well, and not to replant them each season, as I thought necessary when first growing them. My plants are mostly in soap-boxes and are rather crowded in the tanks, quite in the approved amateur fashion. It is not pleasant to work in cold water early in the year, and last year none of the plants which were in good health were disturbed, and this year they still remain in the same earth and boxes. So far they have done finely, and I have never seen better or larger flowers of N. albida, N. alba candidissima, N. carnea and N. chromatella. The foliage has been vigorous and satisfactory. The roots were originally planted in rather stiff loam, with a large proportion of stable-manure, and there has been a gradual addition of decaying leaves and vegetation, which has made a layer of a few inches in the tank and probably proves valuable nutrition for the wandering roots. If one has the room, Water-lilies should be planted out where they will be surrounded by ample water-space, under which conditions only are they really effective. But if one has only a small garden and wishes to secure a supply of flowers of the various varieties, the practice I have outlined will prove as satisfactory as it is comfortable. This easy-going practice will not, however, answer for the tropical Nymphæas which have to make a great growth in a short time, and need not only a high temperature, but an abundance of nutriment which can be quickly assimilated. One of the minor results of the water-garden seems to be the almost total disappearance of slugs from the borders and the greenhouse, where the frogs hunt them when not engaged, as they have recently been, in the intensely noisy courtship incident to the season.

Elizabeth, N. J. *J. N. Gerard.*

Nott's Excelsior Pea.—I have noticed for several seasons past that the useful Pea known as Little Gem has deteriorated very considerably, and gives a mixture of rank late vines. No amount of selection appears to be sufficient to bring it back to what it once was. This would be a matter of extreme regret if it were not for the advent of another variety which is a considerable improvement on Little Gem, even when it was at its best. I refer to Nott's Excelsior, now catalogued by most of the prominent seedsmen. This variety is only one foot in height; both foliage and pods are of a fine attractive color. It endures drought in a remarkable manner, and is an abundant bearer, every pod being filled tight with the most delicious-flavored peas. In my opinion it is destined to displace not only Little Gem, but almost every other variety of that type. It certainly is worth a trial by every one who grows early dwarf Peas.

Bloomfield, N. J. *W. R. Smith.*

Correspondence.

The Poison Ivy.

To the Editor of Garden and Forest:

Sir,—The genus Rhus belongs to the widely distributed Anacardiaceæ or Cashew family, and numbers among its relatives such species as the Cashew Nut, Pistachio, Mastic, Mango and many other plants whose juices and resins form valued dyes, gums and varnishes, and whose fruits, though often poisonous in parts, are highly valued in tropical regions. The leaves, berries, bark, wood and roots of many of them are used for dyeing and tanning, and on account of the malic acid they contain some of them are important condiments.

Rhus Toxicodendron, known as the Poison Ivy and by many other names, is a variable plant ranging over a wide area and having three distinct forms which are connected, however, by every gradation of intermediate growth. The most noticeable of these, although perhaps not the most common, is the so-called R. radicans of Linnæus, with smooth entire shining leaves and long petioles. It spreads but little by the root, and the stems are always climbing, being closely attached to some object by innumerable sucker rootlets. It has a wide range, from eastern Asia westward, and its favorite habitat is in damp spots and in woods, where it ascends to the tops of the highest trees, its thickly set horizontal branches being one to two feet long and half-clothing the trunks of trees in open land with a pillar of luxuriant green, and thus rivals in beauty any other plant of similar habit.

The second, and with us the commonest, form (the true Rhus Toxicodendron of the older botanists) is the ordinary bush Ivy, which is an ever-present pest, being found in hedgerows throughout large sections of the north temperate zone.

The third form is, so far as I know, distinctly maritime in its habits, being found in dry, almost barren sand along the Atlantic seaboard, and, perhaps, elsewhere. The trunk of this form is always buried, only the sparsely scattered branches rising above the sand without seeming regularity, and appearing like separate plants, each consisting of a slender branchless stem, seldom a foot in height, terminated by two or three pale, thin, sickly leaves. I have seen it covering hundreds of acres on our Atlantic islands and sand dunes, where it was almost the only inhabitant of the drifting sand—so sparse and weak as to hardly deserve the name of vegetation. It was my fortune to live for some time with a colony of sailors upon one of these bare islands where this Ivy composed, perhaps, a third of all the woody vegetation. Though then highly susceptible to the poison, I yet passed daily on foot through long stretches of it, and even lived in it, and though I took no precaution whatever, I did not feel the slightest irritation from it. It was a revelation to my fellow-islanders when I told them of its poisonous properties, for they had never dreamed of such a fact, nor had any of them ever been troubled by the plant. From its enervated appearance I could easily imagine that its desert surroundings had more or less tamed its virulence. If such was the case we may infer, perhaps, that the strength of the poison varies to some extent with the thriftiness of the plant.

The poison of the Ivy, though always present, probably, like all sap, varies slightly in activity with the season, though, perhaps, not more than does man's power of resisting it, for the warm, perspiring skin of summer, with its open pores, takes in and throws out juices much more readily and is more easily irritated than the dry, firm skin and contracted pores of the exposed parts in winter. Aside from the sand form, all parts of the Poison Ivy are poisonous at all seasons, the root being by far the most virulent of all. I have seen a robust physician in the prime of health poisoned almost fatally, and rendered nearly helpless for many days, in spite of all medicines, simply by pulling the roots. The toxic element seems to be volatile, and any part when thoroughly dried becomes wholly innoxious, but when cut with hay the latter will become dry, while the Ivy-stems are still fresh and contain poison. In this condition it is drawn to the barn, where the slowly evaporated poison is absorbed by the surrounding hay, which thus becomes, in a degree, as poisonous as the Ivy itself. Through this means I have known men severely poisoned while taking out the hay in winter. It is owing to this volatilization of the juices that the smoke of burning Ivy or of a brush heap containing it ranks next to the root in the virulence of its poison. Though the effects of Ivy are generally a harmless, but troublesome, irritation, it has been known to prove fatal in some very severe cases, and susceptibility to its influence is by no means desirable, though the irritation is said to be sometimes slightly beneficial in cases of rheumatism. Some persons are never affected by the poison, but each attack renders its victim more susceptible, and some are even affected at times by air that has blown over Ivy, especially if the plant has been recently cut. When boys, my brother and I have mowed in Ivy when our bare feet would be almost black with the dried juice, and we used occasionally to "wash" our hands and faces in its leaves, rubbing them on by the handful, in order to prove our immunity from the poison, and always without feeling the slightest effects. Neither of us would now care to repeat this, as the Ivy has for a long time been poisonous to both of us.

The poisoning, which is of an erysipelous nature, usually appears, in light cases, at the point where the Ivy-juice came in contact with the skin, but severe cases are apt to centralize at some point where the skin is tender. After such a localization is once established each successive attack, if at all severe, is apt to reappear at that point even at times when no irritation is felt where the Ivy was applied. Personally I know of several such cases, and this would tend to show that the poison may be carried in the blood—a theory that is also upheld by the fact that if one has just been severely poisoned he can, to some extent, induce part of the eruptions to appear almost wherever he chooses by keeping the skin locally irritated during the period of incubation.

As the remedies for this poison are so unsatisfactory, I venture a few suggestions gathered from experience. Any scratching or rubbing of the poisoned surface or breaking of the blisters tends to spread and augment the affection. This has led me to adopt a cure that I find to be equal to all ordinary cases, but which at times requires an amount of

physical control and grim determination that might be envied by an Indian. It is to let the poison severely alone—to "grin and bear it"—never under any circumstances allowing it to be rubbed or irritated in any way. Under this treatment the blisters will begin to wither in a day or two, and will soon disappear, and the itching soon subsides, especially if a little cool water be applied to the spot occasionally. Another useful remedy is sour buttermilk (the sourer the better) applied occasionally, and allowed to remain on. A decoction of Lobelia inflata is also good as a wash, but should never be taken internally. The mineral water of the famous Lebanon Thermal Spring, situated about a mile from us, is also largely used here with beneficial effect, a single application for an hour or so usually being sufficient for an ordinary attack.

As there is a popular belief that the Poison Ivy has no insect enemies, I may be pardoned for adding that in March, 1894, while digging out some of the Ivy here on our place we were fortunate enough to discover numerous minute galls on its small fibrous roots, each containing an almost microscopic red larva. They proved to be of an entirely new species, and were sent to Professor L. O. Howard, chief of the Division of Entomology at Washington, who placed them in charge of Professor D. W. Coquillett, the division specialist for that class of insects. At our request he kindly described and named them, speaking, in part, as follows: "Up to the present time no case has been recorded in this country of any species of Cecidomyiidæ living on plants belonging to the genus Rhus. . . . The species is evidently new to science, and may be characterized as follows: Cecidomyia rhois, n. sp. . . ." The perfect flies issue early in May, and are brownish black in color, slightly marked with yellow and red, and having hairy bodies and grayish wings. The size is very small, being only from 1.5 mm. to 2 mm. in length. The original description will be found in *Insect Life*, vol. vii., No. 4, page 348.

Lebanon Springs, N. Y. *W. H. Harrison.*

Figs in Buffalo, New York.

To the Editor of GARDEN AND FOREST:

Sir,—I have a Fig-tree that became a member of the household as a very small pot-plant, a gift from a friend. After a while it outgrew pot-culture and was set in the ground, more to get rid of it than anything else. In the fall it went into a box and was set in the cellar, along with Fuchsias, Hydrangeas and other tender shrubs. It grew very slowly, but always did well, and seemed to enjoy that sort of life, developing into the average Fig-tree, I suppose, a knotty, dark-barked affair, with several stems, the largest nearly four feet high and about an inch through at the ground.

Last spring it set some fruit, the small eye-like blossoms pushing their way through between the scales of the terminal buds in a very novel fashion to one not acquainted with the growth of Figs, the leaves opening some time later. The heavy early rains took all the fruit off, as they did all of the young grapes in the yard. When it began to rain last fall, after the long drought, the ambitious Fig set another crop, out of which seven or eight figs grew to the size of small chestnuts. When the tree was set in the cellar the leaves soon came off, but the fruit remained. During February the temperature was several times below freezing and the more tender plants were all killed, but the figs stood up straight on their stems, and when the tree was planted they began to grow, even before the leaves started. Then a new crop appeared, so many that the tree wisely allowed most of them to dry up. Now the figs of both years are pushing on side by side, none of the setting of last fall having dropped off, and all are about three times as large as when the tree was set in the ground in April. Those of the new crop are about half as large.

Fig-trees are not at all common here, even as tender house-plants, and the behavior of this specimen, though possibly common to the species, is a novelty to many.

Buffalo, N. Y. *John Chamberlin.*

Witches' Brooms on Cherry-trees.

To the Editor of GARDEN AND FOREST:

Sir,—In Europe the cultivated Cherries, Prunus Avium and P. Cerasus, are attacked by a disease which the Germans call Hexenbesen (witches' brooms). The fungus which causes it is closely related to the leaf-curl fungus of the Peach. Formerly it was considered to be identical with the disease on the Peach, but Professor Sadebeck, in a recent monograph,* makes it a distinct species, giving it the name Exoascus Cerasi. Although the English Cherry, P. Avium, is commonly cultivated in the eastern United States, and has become thoroughly naturalized, the disease was not observed upon it here until Mr. Thomas Meehan reported it from Germantown, Pennsylvania, in 1886. The specimens which he collected were distributed in "North American Fungi," No. 2286, under the name Exoascus wiesneri. So far as I can learn it has been found upon the cultivated Cherry in no other locality in America until I found it this spring on Long Island in five different places, namely, Queens, Westbury, Floral Park, Cutchogue and Flatbush. It appears to be widespread on Long Island.

The disease manifests itself by causing the leaves to become reddish and wrinkled before they attain full size. By May 23d the under surfaces of the leaves are covered by a white, mealy layer which is composed of the spore sacs (asci) of the fungus. Dr. Robinson says† that the asci occur on both surfaces, but Professor Atkinson found them only on the under surface in the Germantown specimens. I have examined a large quantity of the Long Island material, and in no case have I found asci on the upper surface. After the white layer makes its appearance the leaves dry up and fall off in a few days. Later, new leaves come out. The affected branches produce no flowers. Where flower-buds should be found twigs appear instead, and the repetition of this process brings about the "broom."

Probably the scarcity of the disease in America is due to our climate being unfavorable to it. Mr. Meehan states that it does not seem to spread. This is strange, because, according to Mrs. F. W. Patterson,‡ the same fungus occurs in America on Prunus serotina, P. Americana, P. Virginiana, P. demissa, P. hortulana and P. Pennsylvanica. The form on P. serotina is common, and why should it not thrive on P. Avium?

In case the disease should show a tendency to become troublesome, it could probably be controlled by cutting out and destroying the "brooms" before the spores come to maturity. This can easily be done, the diseased twigs being indicated by the red color at least a week before the spores mature.

It should be remembered that the fungus is perennial in the twigs; hence the disease may be transmitted by grafts.

Jamaica, N. Y. *F. C. Stewart.*

* "Die parasitischen Exoasceen."

† "Notes on the Genus Taphrina," *Ann. Bot.*, i., p. 169.

‡ "A Study of North American Parasitic Exoasceæ," *Bull. Lab. Nat. Hist. State University of Iowa*, p. 121.

Recent Publications.

The Horticulturist's Rule Book. By L. H. Bailey. New York: Macmillan & Co. 1895.

This is the third edition, and a considerably enlarged and thoroughly revised one, of the compendium of useful information for fruit-growers, truck-gardeners, florists and all others who need a hand-book of horticultural reference, which was originally published some six years ago. The book now contains three hundred pages, and costs only seventy-five cents, and yet it would be hard to find another manual which offers so much practical advice as to horticultural details upon so wide a range of subjects. Since the first edition was published a great amount of knowledge has been gained concerning injurious insects and fungous diseases, and the *Rule Book* in its revised form gives all the improved and current methods for dealing with these pests. It contains also practical remedies and preventives of injuries to plants by mice, rabbits, birds and squirrels. We add the titles of some of the chapters: Waxes for Grafting and for Wounds; Cements, Mortars, Paints and Glues; Planting Tables, giving dates and directions for planting; Seed Tables, giving statistics of weight, size, time required for germination, etc.; Computation Tables; Time of Maturing Different Garden Crops and Average Yields; Methods by which Various Fruits and Vegetables are Multiplied; Greenhouse and Window-garden Work; Methods of Storing Fruits and Vegetables; Preserving Specimens for Cabinets or Exhibition; Postal Rates. These are only a few of the leading topics, but they serve to indicate the scope of the work. A list of the names of plants and vegetables in different languages, a good glossary and a complete index help to make readily available all the information in the book, so that the gardener who turns to it for instruction will rarely fail to find what he wants to know, fully, clearly, and yet very tersely, expressed.

Notes.

Japanese Irises are more than usually abundant and beautiful in the florists' windows this year.

Very striking objects in the landscape just now are the Chestnut-trees with their great dome-like heads covered with cream-colored flowers. In distant woods, where there is an occasional tree of this species, the mass of flowers, surrounded by the green foliage of other trees, has a singularly beautiful effect. Chestnut-trees seem unusually full of blossoms this year, and young ones not more than ten feet high are flowering freely. The odor of these flowers is borne a great distance on still summer evenings, and the fragrance from remote trees is delightful.

Celery is already coming from Long Island, and four stalks bring thirty-five cents. New crop celery, from Kalamazoo, costs fifty cents for a dozen stalks. Chicory, escarolle and Romain lettuce come from near-by farms, and besides taragon, chervil, chives and mint, catnip and tansy are kept in stock by the best dealers. Large quantities of these herbs are bought by the saloon-keepers for use in fancy summer drinks. Solid, well-colored tomatoes are coming from Mississippi in refrigerator cars, as many as 4,000 crates being sold at auction by one house on Monday. They bring twenty-five cents a quart at retail.

There are few of our wayside thickets or neglected fence-rows, especially where the ground is rich and moist, which are not beautified now by the flowering of the common Elder, Sambucus Canadensis. Its abundance justifies the epithet of Common, and, indeed, it is so familiar that its merits are overlooked by the great mass of people who value plants according to their rarity. But the graceful way in which the broad cymes of white flowers are borne above the smooth and always healthy leaves, and the beauty of its abundant dark purple fruit, make it really one of our most attractive shrubs. Fortunately the birds keep planting it year after year, and it is sturdy enough to take care of itself, so that those who appreciate it will always be able to find it, although no one ever thinks of planting it.

The few strawberries now in market come from western New York and Connecticut, and cost twenty-five cents a quart. Blackberries are plentiful; they come principally from North Carolina, though a few of the small-berried early sorts have already been received from as far north as southern New Jersey. The best huckleberries have been coming from the Carolinas and Virginia, but good ones are now coming from the Shawangunk Mountains. Raspberries are coming from Maryland and the coast country up to Lake Champlain, and cost ten cents for a small cup. Muskmelons from South Carolina cost thirteen cents apiece, the red-fleshed Christina melons costing twenty to twenty-five cents each, while large heavily netted melons from New Orleans command forty to seventy-five cents. Closely fruited bunches of Niagara grapes have been here from Florida and southern Georgia for nearly a fortnight, and sell now for twenty-five cents a pound. The Alexander and Early Rivers peaches from Georgia are now being succeeded by the somewhat later varieties, as Tillotson, Mount Rose, Lady Ingold, a good yellow, somewhat earlier than Early Crawford, and Amelia. These Georgia peaches are better this year than ever before. Along with the few remaining P. Barry pears of last year, which sell for ten cents each, the street fruit-stands now display new Bartletts, Seckels and Buerre Giffards from California, and Le Conte pears from Georgia. Some of the Peach plums from California have brought as much as $5.20 a crate, a higher price than any other plums command.

At the Geneva Experiment Station, in this state, the forcing of Lettuce in pots has been tried with considerable success, and the details of the practice are given in a late bulletin. Seed is sown in flats as usual, and the seedlings when two inches high are transplanted into two-inch pots, which are plunged into soil on the bench, so that the pots are covered with about half an inch of the earth. The soil in the pots is the same as that used in the benches, except that it is sifted, and both consist of three parts of loam by measure, one of rotted manure and one of sand. The benches are six inches deep, the lower three inches being filled with manure upon which the roots feed after they grow through the hole in the bottom of the pot, which they soon do to some extent, although a little drainage material is put in the bottom of each pot. The pots are set about ten inches apart, although the distance varies with different varieties, and when they are filled with roots the plants appear to make a compact growth and head more quickly than when grown in beds where the root system is unchecked. One advantage of this method is that the plants are moved but once, and so escape the check of growth which comes from the second transplanting. When ready for market the plant is knocked out of the pot, and since the ball of earth containing the roots is undisturbed it remains moist for a long time, so that the head keeps fresh and crisp much longer than when the roots are disturbed. As soon as a pot is removed from the bench another can immediately be set in its place without waiting to clear the bench, and in this way the method proves economical both of time and space. Cultivators are counseled to avoid sudden fluctuations of temperature, which should be kept at from fifty to sixty degrees during the day and five or ten degrees lower at night, as a higher temperature tends to give a spindling growth, a lack of compactness and greater liability to attacks from aphides. The plants should have plenty of fresh air, especially on sunny days when the temperature is high outside. When watered overhead it is best to select a time when the foliage will quickly dry, and they should never be watered so late in the day that they will not dry before night. Before the pot is plunged in the soil it is turned upside down and the under sides of the leaves are dusted with tobacco to prevent the attacks of aphis. The upper sides of the leaves are then dusted, and about a week later the plants are dusted again, especial care being taken to apply the tobaccco thoroughly at the centres of the growing plants.

A comparatively new pest of fruit-trees is the insect called the cigar-case-bearer, which last year probably ranked next to the bud-moth in New York in destructiveness. In a bulletin from the Cornell Experiment Station, Mr. Slingerland says that it has probably been present in limited numbers in the orchards of this state for many years, but public attention was not called to it until 1888, when Mr. Patrick Barry found it boring holes in newly set pear-fruits. In 1892 Dr. Lintner received some apples from Oswego which had apparently been bored by this insect, and in 1894 specimens were received at the experiment station of Ithaca from a great number of places, showing that it was present in alarming numbers. So far the insect has been recorded only from New York and Canada, but it will probably be heard from soon over a much wider range of country. Owing to its small size and peculiar habits the insect in any stage will be rarely noticed by a fruit-grower, and yet the second one of the curious suits or cases which the little caterpillar wears is conspicuous enough to reveal its presence to the casual observer. The first suit is manufactured in the fall, to be worn all winter, but about the 15th of May the half-grown caterpillar finds this too small, and proceeds to make a summer suit which resembles a miniature cigar in shape and color. These cigar-like objects can be seen moving over the leaf of a plant, although scarcely more than one-fifth of an inch in length, and when disturbed the little creatures retreat into them. The first indication of the insects' presence occurs on the swelling buds of Apple, Pear or Plum trees. Two or three have often been seen on a single bud busily at work eating holes into them no larger than a pin. The work on the expanded foliage is seen in skeletonized dead areas, which have near their centres a clean-cut round hole through one skin, usually on the under side of the leaf. The caterpillars also often attack the growing fruit. The bulletin gives the life history of this most interesting insect, from which it appears that it is only practicable to fight it while in the caterpillar stage, and then it is so well protected in its case as to render its destruction impossible unless the work is very thorough. It can probably be kept in check by two or three thorough sprayings with Paris green, if used at the rate of one pound to two hundred gallons of water. The first application, which may be effectively combined with the Bordeaux mixture for the Apple-scab fungus, should be made as soon as the little cases are seen on the opening buds. A second, and perhaps a third, application may be necessary at intervals of from four to seven days on badly infested trees. These sprayings will also check the bud-moth. It has been also found in Canada that a kerosene-emulsion spray applied at the same time as directed for Paris green is a still more effective check upon the case-bearer, and will probably be so on the bud-moth. In Pear-orchards this insect and the psylla can be checked by a spray of the same emulsion when the leaves are opening. It should be remembered that a fruit-tree ought never to be sprayed when in blossom, and that success in any case will depend almost entirely upon the thoroughness with which the work is done.